

## PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2000-082605

(43)Date of publication of application : 21.03.2000

(51)Int.Cl.

H01C 7/04  
C04B 35/495  
H01C 13/00  
// H03B 5/32

(21)Application number : 10-251202

(71)Applicant : MITSUBISHI MATERIALS CORP

(22)Date of filing : 04.09.1998

(72)Inventor : HIGUCHI YOSHIHIRO

OI KOJI

YOTSUMOTO KOJI

KOSHIMURA MASAMI

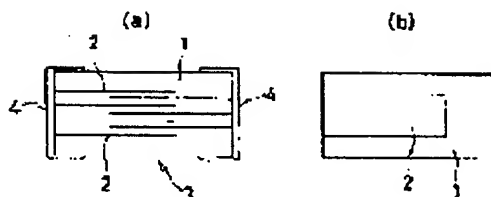
NAKAMURA TOSHIMICHI

## (54) TEMPERATURE COMPENSATION CIRCUIT

(57)Abstract:

**PROBLEM TO BE SOLVED:** To reduce a mounting area by forming an external electrode on both the end faces of an element body where the compound ceramic layer of a Perovskite dielectric and a metal compound oxide NTC thermistor with a specific wt.% each and an internal electrode layer are laminated alternately, and achieving parallel resistance and capacitance with a specific value each.

**SOLUTION:** A compound ceramic element used for a temperature compensation circuit is formed into a mixed powder by mixing and grinding 10-90 wt.% Perovskite dielectric and 90-10 wt.% metal compound oxide NTC thermistor. A conductive material sheet is printed on a green sheet using the mixed powder for forming an internal electrode layer, and the green sheet is piled up on it and the internal electrode layer is printed. The lamination and printing are repeated as a lamination sheet, and the lamination sheet is cut into chips and baked after pressurization, thus forming an external electrode 4 on both the end faces of an element body 3 where the compound ceramic layer 1 and the

**BEST AVAILABLE COPY**

internal electrode layer 2 are alternately laminated, thus obtaining performance with a parallel resistance of 20  $\Omega$  or higher and a parallel capacity of 10 pF or higher at 25°C and at 20-30 MHz.

---

#### LEGAL STATUS

[Date of request for examination] 31.03.2000

[Date of sending the examiner's decision of rejection] 20.09.2002

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

Copyright (C); 1998,2000 Japan Patent Office

**BEST AVAILABLE COPY**